AMENDMENTS TO THE CLAIMS

Please amend the present application as follows:

Claims

1. (Original) A method for establishing a network for communicating a message, the method comprising:

providing a network including topographic network devices and communication links interconnecting the topographic network devices, the topographic network devices each having a physical location represented by a topographic coordinate set; and

for each one of the topographic network devices:

assigning to the one of the topographic network devices a network address that includes the topographic coordinate set thereof,

transmitting the topographic coordinate set of the one of the topographic network devices to the topographic network devices directly connected thereto, and

receiving and storing the topographic coordinate set at at least one of the topographic network devices directly connected thereto.

2. (Original) The method of claim 1, additionally comprising:

transmitting, in response to receiving the topographic coordinate set, a topographic coordinate set from each of the at least one of the topographic network devices; and

receiving and storing the topographic coordinate set from the each of the at least one of the topographic network devices at the one of the topographic network devices as a respective connected device coordinate set.

3. (Original) The method of claim 1, in which:

in providing the network:

the topographic network devices include a source network device, a destination network device and an intermediate network device, and

ones of the topographic network devices, including the intermediate network device, have stored therein the topographic coordinate sets of at least one of the topographic network devices directly connected thereto as respective connected device

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coordinate sets; and

the method additionally comprises transmitting the message from the source network device to the destination network device, the message including the topographic coordinate set of the destination network device as a destination coordinate set, including:

receiving the message at the intermediate network device,

identifying, from the topographic coordinate set of the destination network device and the connected device coordinate sets stored in the intermediate network device, a one of the topographic network devices directly connected to the intermediate network device that is physically closer to the destination network device than the intermediate network device, and

transmitting the message from the intermediate network device to the identified one of the topographic network devices.

4.   (Original) The method of claim 1, in which assigning a network address to the one of the topographic network devices includes:

providing a global positioning system receiver;

co-locating the global positioning system receiver and the one of the topographic network devices; and

determining the topographic coordinate set of the one of the topographic network devices using the global positioning system receiver.

5.   (Original) The method of claim 1, in which assigning a network address to the one of the topographic network devices includes:

providing a map;

determining the topographic coordinate set of the one of the topographic network devices using the map; and

inputting the topographic coordinate set into the one of the topographic network devices.

6.   (Original) The method of claim 1, in which transmitting the topographic coordinate set includes:

inserting the topographic coordinate set into a packet configured for transmission through

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the network; and

transmitting the packet through the network to the topographic network devices connected to the one of the topographic network devices.

7. (Original) The method of claim 6, in which receiving and storing the topographic coordinate set includes:

receiving the packet including the topographic coordinate set at the at least one of the topographic network devices as a receiving network device;

sending the packet through the receiving network device;

extracting the topographic coordinate set from the packet; and

storing the topographic coordinate set as a connected device coordinate set.

8. (Original) The method of claim 1, additionally comprising transmitting at least one of (a) a device type indication, and (b) additional topographic information, of the one of the topographic network device to ones of the topographic network devices directly connected thereto.

9. (Original) The method of claim 1, additionally comprising:

dividing the network into regions;

assigning to each of the regions at least one of the topographic network devices as a regional network device;

interconnecting the regional network devices of the regions by high-capacity ones of the communication links; and

supplying to ones of the topographic network devices in each one of the regions additional topographic information indicating the topographic coordinate set of the regional network device of the one of the regions and a topographic extent of at least some of the regions.

10. (Original) The method of claim 9, additionally comprising routing the message from one of the topographic network devices located in a first one of the regions to another of the topographic network devices located in a second one of the regions via the regional network device of the first one of the regions and the regional network device of the second one of the regions.

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11. (Original) A method for transmitting a message, the method comprising:

providing a network including topographic network devices and communication links interconnecting the topographic network devices, the topographic network devices each having a physical location represented by a topographic coordinate set, and a network address that includes the topographic coordinate set, the topographic network devices including a source network device, a destination network device and an intermediate network device, ones of the topographic network devices, including the intermediate network device, having the topographic coordinate sets of those of the topographic network devices directly connected thereto stored therein as respective connected device coordinate sets;

inserting the topographic coordinate set of the destination network device into the message as a destination coordinate set; and

transmitting the message through the network from the source network device to the destination network device, including:

receiving the message at the intermediate network device,

identifying, from the destination coordinate set and the connected device coordinate sets stored in the intermediate network device, one of the topographic network devices directly connected to the intermediate network device that is physically closer to the destination network device than the intermediate network device, and

transmitting the message from the intermediate network device to the identified one of the topographic network devices.

12. (Original) The method of claim 11, in which, in identifying one of the topographic network devices, the one of the topographic network devices that is physically closest to the destination network device is identified.

13. (Original) The method of claim 11, in which identifying one of the topographic network devices includes performing a topographic calculation using the destination coordinate set and the connected device coordinate sets stored in the intermediate network device.

14. (Original) The method of claim 11, in which:

in providing the network, the ones of the topographic network devices additionally store at least one of (a) a device type indication, and (b) additional topographic information, of the ones of the topographic network devices directly connected thereto; and

in identifying one of the topographic network devices, the one of the topographic network devices is identified additionally in response to at least one of the device type information and the additional topographic information.

15. (Original) The method of claim 11, in which:

the method additionally comprises providing to ones of the topographic network devices, including the intermediate network device, additional topographic information relating to the network; and

in identifying one of the topographic network devices, the one of the topographic network devices is identified in response to the additional topographic information in lieu of the destination coordinate set.

16. (Original) The method of claim 15, in which, in identifying one of the topographic network devices, in lieu of being physically closer to the destination network device than the intermediate network device, the one of the topographic network devices is connected at least indirectly to the intermediate network device by one of the communication links at least one of (a) having a higher transmission capacity, and (b) carrying less network traffic.

17. (Original) The method of claim 11, in which:

the method additionally comprises generating the message addressed to a destination network device identified by a destination network address, the destination network address lacking a topographic coordinate set; and

inserting the topographic coordinate set of the destination network device into the message as a destination coordinate set includes:

receiving the message at the intermediate network device, and

in response to the destination network address, providing the topographic coordinate set of one of the topographic network devices as the destination coordinate set, the one of the topographic network devices being associated with the destination network device.

18. (Original) The method of claim 17, in which:

the destination network address includes a domain name; and

providing the destination coordinate set includes providing the topographic coordinate set of one of (a) the one of the topographic network devices directly connected to the destination network device, and (b) one of the topographic network devices associated with the domain name.

19. (Original) The method of claim 11, in which:

in providing the network, the network includes regions and at least one of the topographic network devices is assigned to each of the regions as a respective regional network device, the regional network devices being interconnected by high-capacity ones of the communication links; and

the method additionally comprises:

determining, from the destination coordinate set, whether the destination network device and the intermediate network device are located in a different ones of the regions, and

when the destination network device and the intermediate network device are located in a different ones of the regions, routing the message from the intermediate network device located in a first one of the regions to the destination network device located in a second one of the regions via the regional network device of the first one of the regions and the regional network device of the second one of the regions.

20. (Original) A method of transmitting a message, the method comprising:

providing a network including end-user devices, topographic routers and communication links interconnecting them, at least the topographic routers each having a physical location represented by a topographic coordinate set, and a network address that includes the topographic coordinate set, the end-user devices including a source network device and a destination network device;

transmitting a message from the source network device to an input router, the input router being the one of the topographic routers directly connected to the source network device, the

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message identifying the destination network device by a destination network address lacking a topographic coordinate set;

in response to the destination network address, providing the topographic coordinate set of a one of the topographic routers associated with the destination network device as a destination coordinate set;

inserting the destination coordinate set into the message; and

in response to the destination coordinate set, topographically routing the message through the network to an output router, the output router being the one of the topographic routers directly connected to the destination network device.

21. (Original) The method of claim 20, in which, in providing the topographic coordinate set, the topographic coordinate set of the output router is provided.

22. (Original) The method of claim 20, in which:

in transmitting the message, the destination network address includes a domain name;

in providing the topographic coordinate set, the one of the topographic routers whose topographic coordinate set is provided is a domain router, the domain router being a one of the topographic routers associated with the domain name;

topographically routing the message through the network includes:

topographically routing the message through the network to the domain router,

in response to the destination network address, providing the topographic coordinate set of the output router as a new destination coordinate set,

inserting the new destination coordinate set into the message, and

in response to the new destination coordinate set, topographically routing the message through the network to the output router.

23. (Original) The method of claim 20, additionally comprising transmitting the message from the output router to the destination network device in response to the destination network address.

24. (Original) The method of claim 20, additionally comprising inserting the topographic

coordinate set of the input router into the message as a reply-to coordinate set.

25. (Original) The method of claim 24, additionally comprising:

receiving the message at the destination network device as an original message; and

creating a return message to include:

a destination network address identifying the source network device, the destination network address lacking a topographic coordinate set; and

the reply-to coordinate set of the original message as a destination coordinate set.

26. (Original) The method of claim 20, additionally comprising:

detecting whether the message additionally includes a destination coordinate set; and

when a destination coordinate set is detected, omitting providing the destination coordinate set and inserting the destination coordinate set.

27. (Original) The method of claim 20, additionally comprising:

receiving a message at one of the topographic routers;

detecting whether the message includes a destination coordinate set equal to the topographic coordinate set of the one of the topographic routers; and

when the destination coordinate set is detected to be equal to the topographic coordinate set of the one of the routers, transmitting the message from the one of the routers to the destination network device in response to the destination network address.

28. (New) A method for transmitting a message through a communication network, the method comprising:

generating in a source network device, a message comprising a packet having a header;

determining a destination address comprising a topographic coordinate set of a destination network device;

inserting the destination address into the header of the packet; and

transmitting the packet to a directly-connected network device that is directly connected to the source network device.

29. (New) The method of claim 28, wherein the topographic coordinate set of the destination network device comprises a longitude and a latitude of a location of the destination network device.

30. (New) The method of claim 28, further comprising:

assigning to the source network device, a source address comprising a topographic coordinate set of the source network device; and

inserting the source address into the header of the packet; and

transmitting the packet comprising the source address and the destination address to the directly-connected network device.

31. (New) The method of claim 30, wherein the directly-connected network device is a router containing a look-up table comprising a plurality of device coordinate sets; each of the plurality of device coordinate sets comprising a topographic coordinate set of each of a plurality of network devices that are directly connected to the router.